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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,071

06/29/2006

Shuji Sonezaki

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7590

01/25/2010

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EXAMINER

WANG, CHUN CHENG

ART UNIT

PAPER NUMBER

1796

NOTIFICATION DATE

DELIVERY MODE

01/25/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

nyuspatactions@ladas.com

Office Action Summary	Application No. 10/551,071	Applicant(s) SONEZAKI ET AL.	
	Examiner Chun-Cheng Wang	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-23 is/are pending in the application.
- 4a) Of the above claim(s) 12-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-11 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/09/2009 has been entered. Claim 2 have been cancelled. Claims 1 and 3-23 are pending. Claims 12-23 are withdrawn from consideration. New ground rejection applied.

2. The objections and rejections not addressed below are deemed withdrawn.

3. The text of those sections of Title 35, U.S. Code not included in this section can be found in a prior Office Action.

Response to Amendment

4. The reply is not fully responsive to the prior Office Action because of the following omission(s) or matter(s): Applicants inadvertently list original rather than amended claim 8. Examiner will examine the application according to the amended claim, which is claim 8 depending on claim 1, to expedite the prosecution. Next occurrence the application will return as non-responsive without examine on the merit.

Claim Rejections - 35 USC § 102

5. Claims 1, 3 and 5-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kambe et al. (US 6599631).

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Claims 1, 3 and 5-7: Kambe disclose anatase and rutile TiO₂ (Example 1) fine particle of particle size below 80 nm (see Example 2, column 30, lines 59-65) chemically bonded with polyacrylic acid (read on hydrophilic polymer having carboxyl groups and water soluble polymer contains a plurality of polycarboxylic acid group) (Example 4, a composite formed with TiO₂ particles that is not silylation modified, which is labeled B in FIG. 24, column 32, lines 55-65).

Claim 8: See Example 2, column 30, lines 13-24.

Claim 9: See column 19, lines 44-45.

Claim 10: See column 19, lines 59-60.

Claim Rejections - 35 USC § 103

6. Claims 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kambe et al. (US 6599631) in view of Blake et al. ("Application of the Photocatalytic Chemistry of Titanium Dioxide to Disinfection and the Killing of Cancer Cells", Publisher: Taylor & Francis, Journal: Separation and Purification Methods, Volume 28 Issue 1, 1999, pp1-50).

The disclosure of Kambe is adequately set forth in paragraph 5 and is incorporated herein by reference.

Kambe further disclose adding sodium chloride in water based dispersion of the nanoparticle (column 19, lines 59-64). However, Kambe is silent on the specific pH buffer.

Blake discloses TiO₂ with HeLa cells were washed and mixed with phosphate buffered saline (PBS), e.g. physiological saline. **Tumors** caused by transplanting HeLa cells into nude mice were **suppressed by irradiation with UV light in the presence of TiO₂** (page 28, Tumor Cells).

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In light of such benefit, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to disperse the surface modified TiO_2 in the physiological saline solution and use it for phototherapy treatment of cancer tissue.

Response to Arguments

7. Applicant's arguments with respect to claim 1, 3 and 5-11 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

8. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The closest reference Kambe et al. (US 6599631) does not teach or fairly suggest the composite titanium dioxide comprising magnetic material.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Cheng Wang whose telephone number is (571)270-5459. The examiner can normally be reached on Monday to Friday w/alternate Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571)272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/
Primary Examiner, Art Unit 1796

/Chun-Cheng Wang/
Examiner, Art Unit 1796

/CCW/